

**REPORT ON THE JOINT  
WHC/ICOMOS/ICCROM MISSION TO**

**Historic Ensemble of the Potala Palace,  
Lhasa (China) (C 707)**

**25-29 April 2015**

## **TABLE OF CONTENTS**

1. Executive Summary and List of Recommendations
2. Background to the Mission
3. National Policy for the Preservation and Management of the World Heritage Property
4. Identification and Assessment of Issues / Threats
5. Conservation Condition on the Urban Master Plan of Lhasa
6. Conclusions and Recommendations

### **Annexes**

- 1 - Terms of Reference and Itinerary
- 2 - Urban Master Plan of Lhasa City (2009-2020)
- 3 - The Old Town Protection Project of Lhasa

## **EXECUTIVE SUMMARY AND LIST OF RECOMMENDATIONS**

The Potala Palace was inscribed on the World Heritage List in 1994, under criteria (I), (IV), (VI). The Jokhang Temple and the Norbulingka were inscribed in 2000 and 2001 respectively.

As requested by the decision adopted at the 38<sup>th</sup> Session of the World Heritage Committee, a Reactive Monitoring mission to the Historic Ensemble of Potala Palace was carried out: 1) to assess the state of conservation of the property and factors affecting its Outstanding Universal Value (OUV), including authenticity and integrity, particularly in light of the development activities being carried out within the Old Town Protection project, 2) to review the management system for the property and conservation plans for the three component parts of the property, and 3) ways to harmonize these with the Lhasa Urban Development Plan, 4) to assess any other relevant conservation issues.

The World Heritage property of the Historic Ensemble of the Potala Palace (Potala Palace, Norbulingka, Jokhang Temple) receives the highest attention at State, provincial and city levels. These include new legal provisions, finances and engagements with all relevant stakeholders. The mission considers that the overall state of conservation of the property is good.

The Old Town Protection Project is an infrastructure improvement project to remove the disorderly development phenomena of the historical zone, while bringing minor improvements. These infrastructure improvement projects do not produce negative impacts on the historical landscape in the zone nor on the property.

The impact of the two malls (Barkhor Mall and Shenli Mall), which are located at the edge of the buffer zone, was a concern raised in the previous State of Conservation Report. While Barkhor Mall does not negatively impact the historical landscapes and scenes of the Jokhang Temple and the ancient city of Lhasa, the mission was unable to confirm the potential impact the underground car park construction has had on the any heritage below due to the lack of related data. Also, the height of Shenli Mall, which exceeds the upper height limit of 12m for buildings in the buffer zone of the Jokhang Temple, poses no major impact on the visual corridor between the Jokhang Temple and the Potala Palace. However, its large size, as well as the signs and exterior of the Shenli Mall building are not in harmony with the traditional urban fabric of the Old Town. This construction could be a precedent leading to the modern development of the whole 133ha buffer zone of the Jokhang Temple. Height control of the buffer zone should be taken into account since high-rise buildings could potentially impact the visual aspects of the Historic Ensemble of the Potala Palace.

Many modern buildings, which are being built just outside of the buffer zone of the inscribed component parts of the property, are damaging the cultural environment. These high-rise buildings can potentially erode the OUV of Historic Ensemble of the Potala Palace, which functions as a religious symbol for Tibetans.

The Urban Master Plan of Lhasa City (2009-2020) and its integration into the Management plan of the property was not discussed. The current Urban Master Plan of Lhasa City (2009-2020) doesn't seem to fully succeed in conserving the OUV, including authenticity and

integrity, of the Historic Ensemble of the Potala Palace. It didn't take into account the historical context and spatial linkages of the property that form the historical environment of this city. This has resulted in an over-commercialization of the area surrounding the inscribed component parts, damaging the cultural structure and visual corridors between them.

The mission noted several factors that influence the current state of the property which are described in the main report.

Although the three key components of the World Heritage property have their own boundaries and buffer zones demarcated, the conservation approach should be broadened to consider the landscape given its linkages between different components and the Lhasa city. The most important tool for implementing such an approach is the Urban Master Plan of Lhasa City (2009-2020), which is being revised. However the revised Plan couldn't be checked because materials were not available. In any case, the mission considers that the revised plan should include provisions to control the size and use of building, lightings, colour of signs, façades and roofs of buildings within the property and buffer zone as well as within the larger setting of the Lhasa city.

The current management plan should be revised and integrated with the Urban Master Plan to control the size and use of building, lightings, colour of signs, façades and roofs of buildings on the main route in Lhasa city as well as within the property. If the Urban Plan cannot meet this requirement, the mission recommends that a Cultural Environment Management Plan of Lhasa is developed, which can control the aforementioned aspects.

A Development permit system, along with other regulations must be developed. All developments in Lhasa should be decided and permitted after reviewing results from excavations from of the underground heritages. Historically important archaeological sites should be included and conserved in the Heritage Conservation Plan of Lhasa.

As the underground is continuous system flowing through the entire city, the mission suggests conducting an impact assessment on the underground water system for all development in Lhasa city, to review the underwater level changes continuously throughout Lhasa city, not just in the developments within the buffer zone. Impacts on historically important archaeological sites should be included in this assessment in order to conserve them and make provisions within the Management Plan.

The Potala Palace is constructed on steep topography. Soil erosion and bedrock conditions should be checked and systematic soil erosion protection measures should be prepared for the safety of the Potala Palace. On-going major monitoring exercises should focus on this aspect.

The mission recommends maintaining the holy atmosphere of Lhasa, and conserving favourable environments for the pilgrims along with the principal pilgrimage road as well as in the buffer zones. A suitable lighting scheme could be considered not only for the property but also for the related surroundings.

The Heritage Impact Assessment already conducted for new development projects should be considered as an integral tool for future development activities and can be integrated into the Management Plan as a requirement.

## **1. BACKGROUND TO THE MISSION**

The World Heritage Centre, in the letters of 28 May and 21 October 2013 addressed to the State Party, expressed concerns over the information received on inappropriate modernization projects and wide-scale demolition of historic buildings in the old city.

In its response, the State Party informed about the situation but the World Heritage Centre and Advisory Bodies raised concerns over several issues which are outlined in the State of Conservation report of 2014 (38.COM 7B.10), in particular the lack of details on the construction of the two large shopping malls, of details of the underground car park beneath the Mall and a drainage scheme which could have structural and water supply implications for the property, the demolition of historic buildings, and the road improvement schemes undertaken apparently without any prior archaeological work. Based on these concerns, the World Heritage Committee, in Decision 38 COM 7B.10, requested the State Party to invite a joint WHC/ICOMOS/ICCROM Reactive Monitoring mission. The Terms of Reference (TOR) that were transmitted to the State Party to the mission are included in Annex 1.

The joint Reactive Monitoring mission took place from 25-29 April 2015 with the following members:

(Late) Dr. Ron Van Oers, representing the Asia and the Pacific Section, UNESCO World Heritage Centre (Paris).

Dr. Gamini Wijesuriya, representing ICCROM.

Dr. Mie Oak Chae, representing ICOMOS.

The representatives of the State Party, namely SACH and the local authorities managing the property, provided all necessary support and organised site visits to all three components but the last meeting planned with all the stakeholders was not held due to the sudden death of Dr van Oers, on the 28th April. The State Party nevertheless provided all the materials that were to be discussed at this meeting.

## **2 NATIONAL POLICY FOR THE PRESERVATION AND MANAGEMENT OF THE WORLD HERITAGE PROPERTY**

### **2.1 Protected area/national legislation**

State Priority Protected Sites: Historic Ensemble of the Potala Palace (Potala Palace, Norbulingka, Jokhang Temple).

The three elements of the property – Potala Palace, Norbulingka and Jokhang Temple benefit from protection at the highest level. The government also protects the buffer zones and a significant number of individual historic buildings. There has been a recent investment of RMB 470 million (USD 77.69 million) in conservation, management and infrastructure projects in the property.

In July 2013, Lhasa city adopted the Regulation on Preservation of the Old Town of Lhasa, and has launched the Old Town Protection Project to address problems of infrastructure,

excessive commercialization with uncontrolled spread of street vendors, inappropriate post-1950s construction, and inadequate tourist facility provisions. The project is revising conservation plans for the Barkhor Area and Jokhang Temple.

## **2.2 Institutional framework**

The conservation and management of the property fall under the following regulatory measures, which also prescribe the institutional arrangements:

- The Cultural Relics Protection Law of the People's Republic of China
- Regulation on Preservation of the Old Town of Lhasa
- Conservation Master Plan for the World Cultural Heritage Property
- Lhasa Barkhor Area Conservation Plan,
- Conservation Plan for the Historic Ensemble of the Barkhor Area in Lhasa, - Cultural Heritage Conservation Plan for the Jokhang Temple
- Regulation on Preservation of the Old Town of Lhasa
- Urban development strategy of “protecting the historical urban area and building a new urban area elsewhere”

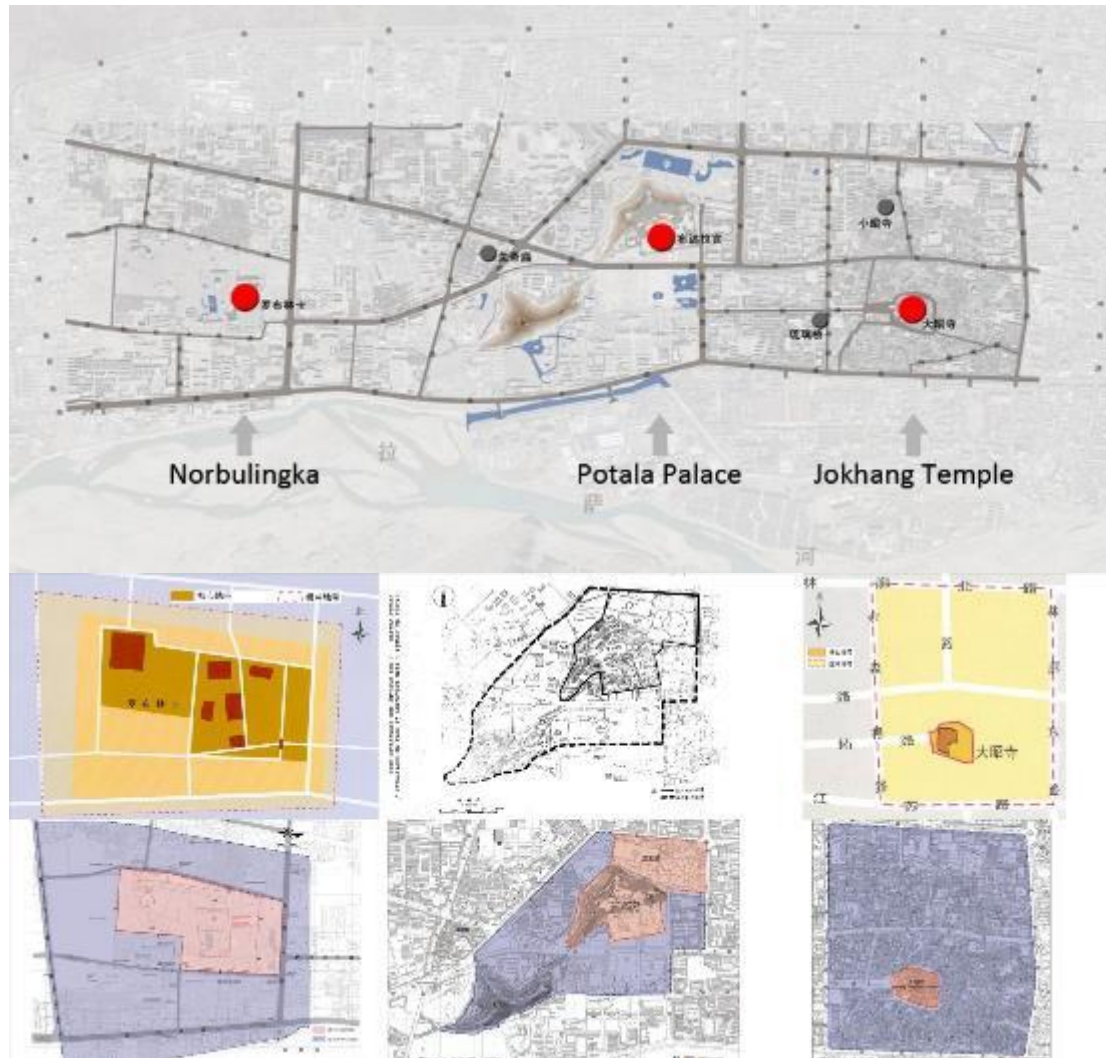
## **2.3 Management structure**

As for the management structure, the following entities are largely responsible for the property:

- The State Council of China, in particular the State Administration of Cultural Heritage (SACH) at the national level;
- The Department of Cultural Heritage, the Tibet Autonomous Region;
- The Department of Cultural Heritage, Lhasa City;
- Chinese Monitoring Centre of World Cultural Heritage

### 3. IDENTIFICATION AND ASSESSMENT OF ISSUES / THREATS

The Potala Palace was inscribed on the World Heritage List in 1994; the Jokhang Temple and the Norbulingka were inscribed in extensions to the property in 2000 and 2001 respectively.

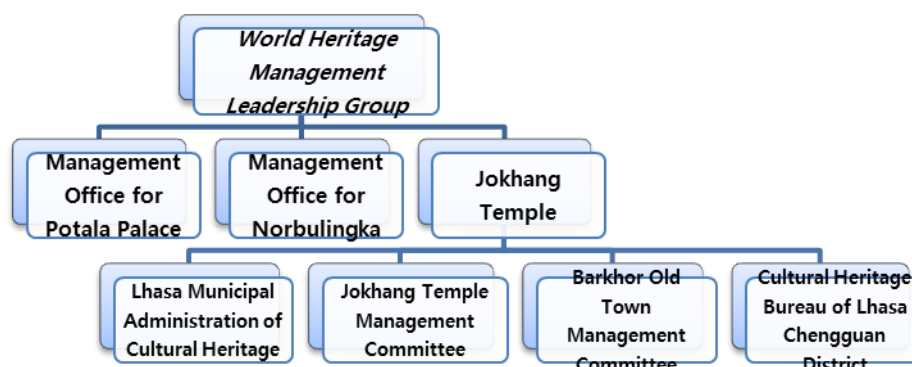


#### 3.1 Management effectiveness

Potala Palace, Norbulingka, and Jokhang Temple are well conserved and carefully managed to sustain the OUV of the property. The inscribed component parts of the property contain a large number of murals and sculptures that are being carefully conserved and protected. Fire-fighting systems, lightning protection systems, and security are well-organised at all three components of the property.

Most decision-making powers for the management of the property rest within the local authorities but the central government through SACH maintains a good relationship with local bodies and ensures the State Party's responsibility towards sustaining the OUV of the property. In recent years, with a view to protect the historical environment of the surrounding area of the Jokhang Temple of the Old Town of Lhasa, the municipal government of Lhasa set up the Cultural Heritage Bureau of Lhasa Chengguan District in

2011, and the Barkhor Old Town Management Committee in 2012. With a view to strengthen the fire prevention, which is a real threat to the property, the Lhasa Fire Detachment set up the Fire Department for the Jokhang Temple and the Norbulingka. The following organizational scheme was presented to the mission, but would like this to be integrated into the elaboration of management system and the management plan being revised.



Additionally, many progressive actions taken for strengthening the governance (see below) should also be integrated into overall management systems and presented.

The management of the buffer zone and the larger setting, including visual corridors mainly between the Potala Palace and the Jokhang Temple, has raised some concerns. As the conservation policy mainly focuses on the conservation of the three heritage sites and their buffer zones, there is concern regarding the development conditions of the areas surrounding them.

The conservation policy does not seem to be very effective in managing the overall elements that contribute to sustaining the Outstanding Universal Value of the Historic Ensemble of the Potala Palace and its larger setting. As Lhasa has been the administrative and religious capital of the government, attention should be paid to the conservation of the historic context & cultural environment that represents various heritage typologies, and not just the three heritage components and their buffer zones.

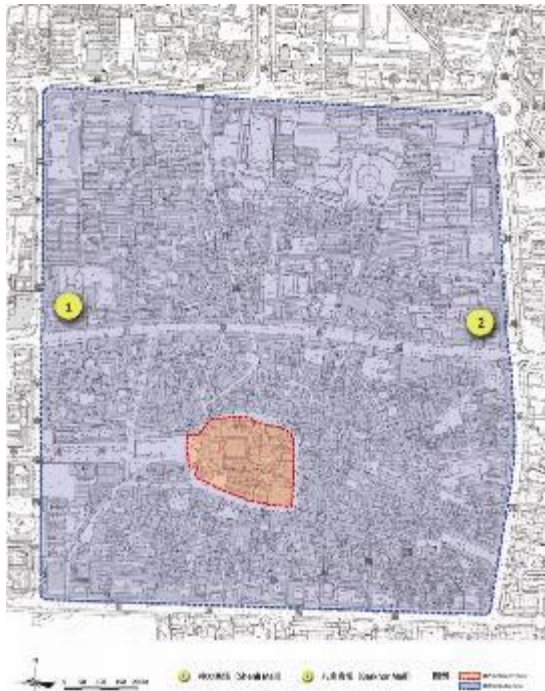
### **3.2 Nature and extent of threats to the property, taking into consideration the OUV for which the property was inscribed and specific issues outlined by the World Heritage Committee**

#### **3.2.1 The development of two new commercial shopping malls**

The 2014 State of Conservation report raised questions regarding the construction of two malls in the city of Lhasa, in areas adjoining the property. The Barkhor Mall and Shenli Mall were built outside the Barkhor Historic Area and at the edge of the buffer zone of the Jokhang Temple, on land where government offices had been removed. The construction was part of the Protection and Environmental Improvement of the Old Town, and served to relocate the 3031 vendors from the Barkhor Historic Area around Jokhang Temple and also to provide additional services to tourists. The purpose was to provide business premises for



vendors of all the 3031 including parking and rest areas for tourists, so as to divert the tourist flow.



### The Barkhor Mall

Barkhor Mall is located on the north-western side of the intersection of Lingkhor East Road and Beijing Road, 650m and 2,000m away from Jokhang Temple and the Potala Palace in linear distance respectively. The project includes the transformation of a 3-storey citizen service centre, and 4-storey archive building using Tibetan architectural style. A new 3-storey commercial building with a height of 11.65m has been constructed to house part of the vendors mentioned above. This has been built on the site where a 4-storey government building was demolished. A space to accommodate 520 cars is also planned.



<Before construction of Barkhor Mall  
(South-North)>



<After completion of phase I project  
of Barkhor Mall (South-North)>

Although the overall height of the new mall is lower than the building that existed, the State Party has carried out a Heritage Impact Assessment for which they should be congratulated. To minimize the negative influence on the visual corridor between Jokhang Temple and the Potala Palace improvements to the originally planned façade have been made. Since the mall

was constructed outside the property, there is no impact on any of the attributes, or on their authenticity and integrity. On the other hand, it has heeded the vendors that were removed from the property, therefore has enhanced the quality of the historic environment.



### The Shenli Mall

Shenli Mall is located 544 meters from the Jokhang Temple and 1,100m from the Potala Palace, located in the boundary area of the buffer zone around the Jokhang Temple. It consists of four floors with part projecting to 5 floors and two floors underground for 400 parking.



Since the site is located outside the property, there is no direct impact on the attributes, authenticity and integrity of the property. However, it does have some influence on the visual corridor between the Jokhang Temple and the Potala Palace. The height of the Shenli Mall building exceeds the upper height limit regulation of 12m for buildings in the buffer zone of the Jokhang Temple. This, along with its volume that is much larger than the traditional Tibetan buildings, and problems of over-commercialization regarding large-scale signboards, negatively impacts the historical environment of the Jokhang Temple. The construction of Shenli Mall could end up leading to the modern development of the whole 133ha buffer zone of the Jokhang Temple if no effective building regulations are put into



place. The roadscape on the street level, both inside and outside of the buffer zone, needs to be considered in managing the historic environment of the property.



<The scene of Shenli Mall>



<The signs of Shenli Mall>



<The building signboard next the Shenli Mall building>



<The building signboard right across the buffer zone>



< The visual corridor between Jokhang and Potala, Shenli Mall(red circle)>

### 3.2.2 The Old Town Protection Project

The Old Town Protection Project takes the historical and cultural zone of Barkhor Street as the core, and includes the areas to the west of Lingkhör East Road, to the east of Duosenge Road, to the north of Jiangsu Road, and to the south of Lingkhör North Road, covering an area of 1.33km<sup>2</sup>. It has three sub-district offices, 15 neighbourhood committees, and a permanent resident population of around 110,000. Activities foreseen in the project include the improvements to the property around Jokhang temple.

According to a poll carried out jointly by the Chengguan District and Old town Management Committee in December 2012, about 96% of residents completely supported the implementation of old town protection project. The project was commenced on 20 December 2012, and completed on 30 June 2013. According to the requirements of construction project review and approval procedures, the protection project for the old town of Lhasa obtained the Official and Written Approval of the Feasibility Study Report on the Protection Project for the Old town of Lhasa (Z.F.G.T.Z. [2013] No. 500).

The main construction projects include underground comprehensive pipeline improvements, electric power system renovation, water supply and drainage systems upgrade, fire facilities improvement, heating system upgrade in the old town, road system renovation, street lamps upgrade and environmental sanitation improvements.

The Protection Project is also aimed at cultural heritage conservation, improvement of people's livelihoods and continuation of excellent ethnic culture, and focuses on updating municipal infrastructure and removing the hidden safety dangers, such as fire, in the old town.



<Before>



<After>

- Underground comprehensive pipeline improvement: building 31.42km underground comprehensive pipelines and trenches, and making 1,654 inspection wells of electric power, communication, water supply and drainage, etc.
- Electric power system renovation: Constructing one 110kV transformer substation to supply power for the old town, laying 135km high- and low-voltage cable, installing 123 sets of box-type transformers, 50 sets of looped network boxes, 448 sets of branch boxes, and fixing 1,477 in-house meter boxes for 17,072 households.
- Water supply and drainage systems upgrade: Constructing 1.2km main water supply pipelines, renovating and repairing 7km water supply pipelines; dredging 29.43km main

sewage discharge pipelines, cleaning 1,965 sewage wells, dredging 9.3km rainwater pipeline, cleaning 4,004 rainwater wells, clearing and transporting 2,608 tons of sludge.

- Fire facilities improvement and hidden risks prevention: Installing 2 fire water cranes and 46 fire hydrants, dismantling more than 2,200km various circuits which are aged, damaged and connected at random, detecting and eliminating 260 hidden dangers, and removing 89 fire access barriers.
- Heating system upgrade in the old town: Constructing the power supply system, surely meeting the demand of electricity utilization load for electric heating, reconstructing and replacing 13,473.4km heating circuit behind meters and domestic electric circuits, and constructing 3.5km gas pipeline. The heating system upgrade in the old town leads to the installation of 24,152 sets of electric heaters and 1,031 sets of wall-hanging gas stoves, and could meet the heating demands of 110,000 people in the old town.
- Renewing 1,438 street lamps.
- Adding environmental sanitation facilities: 300 garbage bins, 170 dustbins, and 70 seats.

According to the materials provided by the Cultural Heritage Department, the historical and cultural zone of Barkhor Street has 65 priority protected sites, including 8 state priority protected sites, 4 provisional-level priority protected sites and 53 city or district-level priority protected sites, and 61 registered immovable cultural properties, totalling 126 various cultural properties.



The activities involved in this old town protection project are the infrastructure improvement, to remove the disorderly phenomena of the historical zone, and bring minor improvement. Therefore the project does not produce negative impacts on the historical and cultural buildings in the zone. Although the archaeology is not considered as part of the attributes conveying the property's OUV, authorities need to be aware of important historical remains during the groundwork.

### **3.2.3 Urban Master plan**

Events that took place during the mission did not permit a lengthy discussion on the Urban Comprehensive Plan for Lhasa (2009-2020). The mission was only informed that the Urban Comprehensive Plan of Lhasa is under review to integrate all cultural heritage conservation requirements and limits into Lhasa's overall management to guarantee the complete protection of the property and its buffer zone. The authorities intend to complete this task by December 2015. The following remarks need to be reviewed again after urban plan is completed.



One of the most important attributes of the OUV of the Historic Ensemble of the Potala Palace lies in its usage as a place of religious pilgrimage. The Urban Master Plan of Lhasa City (2009-2020) doesn't seem to fully succeed in conserving the OUV and authenticity of the Historic Ensemble of the Potala Palace in this respect. As the plan does not thoroughly consider the historical contexts and spatial linkages of the component parts of the property that form the historical environment of this city, it does not seem to be very effective in conserving the historic environment and preventing over-commercialization of the surrounding area of the components.

As Norbulingka was the Dalai Lama's former summer palace, it must have been closely related to the river, which flows on the southern end of the Norbulingka. However, this spatial relationship between the heritage and the natural environment is not fully considered in urban planning of Lhasa. The southern end of Norbulingka is zoned as Residential Area, Commercial Area and Educational Area. This has resulted in that southern end of Norbulingka and river being blocked by residential and commercial buildings. The Eastern end of Norbulingka, which leads to the Potala Palace, is designated as Sports Land, Medical treatment & Public health centre, and Commercial Area.

<Urban Master Plan of Lhasa City, 2009-2020>



\* Left circle (Norbulingka), right circle (Potala, and Jokhang temple)



Land use plan surrounding the Jokhang Temple Area, is zoned as cultural land and residential. An area of 1.33 km<sup>2</sup> of the World Heritage property of Jokhang Temple is under legal protection and authorities have launched the old town area protection project in 2012. However roads between Jokhang Temple and Potala Palace are designated as commercial

and administrative areas that have resulted in overly commercialized roadscape between those two heritage sites.

The southeast and western end of the Potala Palace, which lead to Nourblinka and Jokhang Temple, are zoned as commercial and financial areas. This resulted in the three heritages blocked by commercial uses, eroding the cultural structure and connections. The southern end of the Potala Palace is zoned as sports land (light green), which changes the sacred pilgrimage area as a recreational activity area for tourist. This use is likely to undermine their religious sacredness.



< Singing and dancing activity at the southern end of the Potala Palace>

The land use plan for Lhasa needs to address its role as a sacred religious and spiritual centre and on-going religious places for Tibetan people, attributes which embody the OUV of the Historic Ensemble of the Potala Palace.

### **3.4 Information on any specific threat, or damage to, or loss of outstanding universal value, integrity and/or authenticity for which the property was inscribed**

The mission would like to draw attention to several issues related to construction activities noticed during their stay in Lhasa city. Most of these are located outside the property and even outside the buffer zone. However, considering the overall environment that maintains links between different components of the property and the natural setting of the Lhasa city, the mission is of the view that these should be taken into account in integrating heritage concerns with the larger city development. Indeed, the authorities may wish to consider the Historic Urban Landscape approach in planning and management of the larger Lhasa city.

## Towers

The height of the telegraph tower, located within the buffer zone of the Potala Palace, is higher than the Palace, and has brought a competition to the magnificent view of the Palace complex.



<Tower right beside the Potala Palace>

The lighting of the facilities, such as the display panel of toilet and stairs are difficult to harmonize with the sacred image of the Palace. They have negative influence on historic environment of the heritage.



<Lighting of a rest room signboard>



<Lights of staircase on the pond, in front of the Potala Palace plaza>

## Demolitions and high-rise modern building developments

Potala Palace is located at 3800m. The views looking downwards and upwards are both important. As it commands a very wide view, it is very important to make a landscape management plan that can control the shape and colour of the building's roof and external appearance as well as the height of the buildings for far reaching vista range, not just the buffer zone.

The high-rise buildings can potentially impact the views of the Historic Ensemble of the Potala Palace, which functions as a religious symbol for Tibetans. Respecting religious life and the atmosphere of Tibetans should be the first priority in managing the city.





< High-rise modern buildings and the roof shape outside of buffer zone: looking down from the Potala Palace >



< New constructions near Potala Palace >



<New development in front of Norbulingka>



<New development in front of Norbulingka>



<Demolitions and new developments between buffer zones>



<Demolitions and new developments between buffer zones>

New constructions demolishing traditional buildings can have negative impacts on the visual aspects of the World Heritage property that has three components in three different locations but which maintain historical and religious linkages. Many re-constructed modern buildings and others being built just outside of the buffer zone are damaging cultural environment and the attention of the authorities should be drawn to these developments.



<The tower and the roofs of modern buildings outside the buffer zone: photo taken from the observation deck of the Jokhang temple>

### **3.3 Positive or negative developments in the conservation of the property since the last report to the World Heritage Committee**

Several positive activities were brought to the attention of the mission. Among them were the work towards the formulation of cultural heritage conservation plans for the Potala Palace, the Jokhang Temple and the Norbulingka in accordance with the Law of the People's Republic of China on the Protection of Cultural Relics and the Measures for the Development and Approval of Protection Plans for State Priority Protected Sites. Other relevant regulations have accomplished the following:

- The Tibetan Autonomous Region Cultural Heritage Administration entrusted the Chinese Academy of Cultural Heritage with the preparation of the cultural heritage conservation plans for the Potala Palace and the Jokhang Temple.
- The city of Lhasa entrusted Henan Ancient Architecture Institute to develop the cultural heritage conservation plan for the Norbulingka.

These plans are expected to further streamline the conservation and management requirements of the World Heritage property, define the protection area and construction control zone, and maintain consistency with the Urban Comprehensive Plan of Lhasa, which is under revision, and integrate cultural heritage conservation requirements and limits into Lhasa's overall management to guarantee the complete protection of the Property Area and Buffer Zone.

Currently, the above plans are going through the national level approval formality. The Chinese government planned to report the plans to UNESCO World Heritage Centre as per the decision of UNESCO World Heritage Committee, before 1 December 2015.

In the meantime, the State Party has carried out various conservation activities for the safeguarding of different attributes of the property, including the establishment of a monitoring centre and fire-fighting systems.

A number of the best cultural heritage conservation and research institutes, including Chinese Academy of Cultural Heritage, participated in the scientific research, design, implementation and supervision of many conservation projects and over RMB 400 million has been spent. These include conservation of over 3,000m<sup>2</sup> murals.

One of the noteworthy aspects witnessed by the mission was the attention paid to the protection of the traditional building techniques and mural-drawing techniques and traditional craftsmanship. Senior Tibetan artists and craftsmen of the autonomous region were invited to offer the field instruction and solve various technical questions in the process of implementation, and monks and local Tibetan and Han people who were familiar with the traditional technique were invited to take part in the projects, improving the quality and raising the income of monks and the local people. The statistics show that in the peak time of implementation, there were more than 3,000 farmers and herdsmen working at the site of the Potala Palace and more than 1,000 at the site of the Norbulingka.



The Completion and Blessing Ceremony for the Cultural Heritage Conservation Projects of the Potala Palace showcases the application of traditional conservation and management systems and engaging all relevant stakeholders in sustaining the values of the property.



<Community members are engaged in traditional conservation practices, which the mission also witnessed. >



<Traditional crafts>



<Monks engagement in the completion and blessings ceremony>

Another important activity undertaken by authorities relates to tourism management. Accordingly, various measures to control tourists visiting sites are under implementation but with no restriction imposed on the number and time for Tibetan Buddhists and Tibetan farmers and herdsmen who also enjoy free admission. Authorities should be congratulated on this comprehensive scheme.



#### **4 ASSESSMENT OF THE STATE OF CONSERVATION OF THE PROPERTY**

**Review whether the OUV, on the basis of which the property was inscribed on the World Heritage List, and the conditions of integrity are being maintained**

The Historic Ensemble of the Potala Palace, Lhasa, as a World Heritage property, has gained top-level protection and management from the Chinese government as well as its local authorities and continually allocates funds for sustaining the Outstanding Universal Value. In recent years, Chinese governments have invested RMB 470 million (US\$77.69 million) to complete the projects of ancient architecture consolidation, protection of the murals and colourful sculptures, construction of security protection systems at the all three components of the property. The aim of these projects had been to ensure the protection of the OUV of the property.

Attention also has to be paid to the protection of the old town area of Lhasa within which the property is located and buffer zone demarcated. Various actions to strengthen the protection efforts are being taken by the central government as well as the Tibet Autonomous Region and Lhasa city government. These include the Regulation on Preservation of the Old Town of Lhasa, which includes the old town area of Lhasa under legal protection. The Lhasa city launched the Old Town Area Protection project with the intention to improve the quality of the city and improve the infrastructure. Parts of these activities were aimed at relocating the informal vendors, that two large malls were planned outside the property and the buffer zone. Their impacts on the visual corridor between Portala palace and Jokhang temple have been minimised. The State Party has begun to conduct Heritage Impact Assessments as a policy before implementing major development projects, which is a positive development.





< Mural repair and computer job for mural restoration>

**Review any follow-up measures to previous decisions of the World Heritage Committee on the state of conservation of the property and measures which the State Party plans to take to protect the outstanding universal value of the property**

In July 2013, Lhasa city implemented the Regulation on Preservation of the Old Town of Lhasa, which includes an area of 1.33 km<sup>2</sup>, the buffer zone of the Jokhang Temple. Furthermore, to enhance the overall protection and management of the property, the Tibetan Autonomous Region has initiated the legislative process of Regulations on Protection of the Historic Ensemble of the Potala Palace that has a higher legal position and force, which will facilitate future work. The Mission did not have the opportunity to review these documents.

## **5 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Conclusions**

The Historic Ensemble of the Potala Palace (Potala Palace, Norbuilingka, Jokhang Temple) is managed by the State Party with local authorities (The State Council of China and the Tibet Autonomous Region and Lhasa city), religious communities and other relevant stakeholders with a view to sustain the Outstanding Universal Value of the property. The mission witnessed numerous positive activities being carried out under the above agencies and to address challenges faced by urbanisations, population growth and tourism. The two commercial malls that led to the current reactive monitoring mission are located inside the buffer zone, but along the boundary. The construction was initiated as an activity to reduce the pressure within the property, to divert tourist flows and to relocate a large number of street vendors and to provide them with better opportunities for their livelihoods. The construction of the malls do not directly impact any of the attributes, authenticity or integrity of the property, but do cause some negative influence on the historic environment and visual corridors between the Potala Palace and the Jokhang Temple. The height and volume of these buildings suggest a trend that needs to be avoided even outside the buffer zones, as the larger setting of the Lhasa city is a concern for the long-term protection of the historic environment, including the links between the different components of the property and the natural environment for which Tibet is well known.

As for the construction of underground car parks, whether the archaeology was impacted is not known at this stage due to lack of information. The Old Town Protection project undertaken for the improvement of infrastructure and of the historic and religious atmosphere does not produce negative impacts on the property or the buffer zone but any ground work may require the attention of rescue archaeology. This project was only evaluated from the presentations made, so it would be useful to see the full documentation.

Even though the revised contents of the Urban Master Plan of Lhasa City (2009-2020) could not be reviewed during the mission, the intention of the authorities to revise the plan is expected to integrate on-going concerns into the planning process and address issues of rapid urbanisation and population growth, tourism and the management of the buffer zone and the larger setting of the property. It needs to consider the historical/religious contexts and spatial linkages of the various components and the historical environment of the city of Lhasa.

The mission witnessed many aspects of the management systems being improved and various conservation activities are undertaken but did not have the opportunity to study the overall management system and the management plan, which has elaborated current developments and activities.



## 5.2 Recommendations

Although, the three key components of the World Heritage property have their own boundaries and buffer zones demarcated, the conservation approach should be broadened to consider the landscape given the linkages between the different components and the Lhasa city. The most important tool for implementing such an approach is the Urban Master Plan of Lhasa City (2009-2020), which is being revised. It should control the size and use of building, lightings, colour of signs, façade and roof of buildings on the property, buffer zone as well as within the larger setting of the Lhasa city.

If the Urban Plan is unable to meet this requirement, the mission recommends developing a Cultural Environment Management Plan of Lhasa, which can control the aforementioned aspects on the main route in Lhasa city. Land consolidations over a certain size, which lead to huge developments, should be prohibited to conserve the traditional urban structure and layout in the buffer zone. The Cultural Environment Management Plan is also needed to conserve the historic fabric of the city and restore continuity of the historic environment and visual corridors between the Potala Palace, the Jokhang Temple, and the Norbulingka at the eye level of pedestrians, by including regulations on usage, size, and shape of buildings.

More detailed impact assessment documentation of the development projects is needed. As the underground system continuously flows through the entire city, the mission suggests to conduct an impact assessment on the underground water system for all development in Lhasa city, to review the underwater level changes continuously throughout Lhasa city, not just developments within the buffer zone.

A Development permit system and other regulations should be developed. All developments in Lhasa should be decided and permitted after reviewing results from excavations of the underground heritages. Historically important archaeological sites should be included and conserved in the Management Plan or Heritage Conservation Plan of Lhasa. The Heritage Impact Assessments already conducted for new development projects should be considered as an integral tool for future development activities and can be integrated into the Management Plan as a requirement.

The Potala Palace is constructed on steep topography. Soil erosion and bedrock conditions should be checked and systematic soil erosion protection measures should be prepared for the safety of the Potala Palace. On-going major monitoring exercise should focus on this aspect.

The height of the telegraph tower is higher than the Potala Palace, which impacts the visual characteristics and predominance of this Palace on the landscape. Furthermore, the lighting of the tower is so bright and stands out more than the Palace, which undermines the sacred image of the Potala Palace. Therefore, the tower needs to be moved to another location.

The mission recommends maintaining the holy atmosphere of Lhasa, and conserving favourable environments for the pilgrims along the principal pilgrimage road as well as in the buffer zones. A suitable lighting scheme could be considered not only for the component parts of the property but also for its related surrounding.

## **Annex 1 - Terms of Reference and Itinerary**

### **Terms of Reference Joint World Heritage Centre/ICOMOS/ICCROM Reactive Monitoring Mission to the World Heritage property of the Historic Ensemble of the Potala Palace, Lhasa (China) (C 707)**

At its 38th session, the World Heritage Committee requested the State Party of China to invite a reactive monitoring mission to the World Heritage property of the Historic Ensemble of the Potala Palace (Decision **38 COM 7B.10**), to be jointly conducted by the World Heritage Centre, ICOMOS and ICCROM. The objective of the monitoring mission will be to assess the state of conservation of the property, with particular focus on the potential negative impacts on Outstanding Universal Value (OUV) from recent developments, the demolition of structures and new road and drainage work. This will include an assessment of the authenticity and integrity of the property and a review of the existing management system as well as the status with the implementation of the Management Plan.

In accordance with the above-mentioned Decision **38 COM 7B.10** (see Annex C) adopted at the 38th session of the World Heritage Committee (Doha, 2014), the joint WHC/ICOMOS/ICCROM reactive monitoring mission should address the following key issues:

1. Assess the state of conservation of the property and factors affecting its Outstanding Universal Value (OUV), authenticity and integrity, with particular attention to the potential negative impact of the development of two new commercial shopping malls, ancillary car parking and drainage and new road works at the property;
2. Review the management system for the property, progress with the revision of the Conservation Master Plan and conservation plans for the three component parts of the property, and ways to harmonise these with the Lhasa Urban Development Plan as per Committee Decision **35 COM 7B.65**, and in accordance with the UNESCO Recommendation on the Historic Urban Landscape (November 2011);
3. In line with paragraph 172 of the Operational Guidelines, assess any other relevant conservation issues or development projects that may negatively impact the OUV of the property, such as the demolition of historic buildings, road improvement schemes undertaken without any prior archaeological work within or around the property;
4. the conditions of integrity, protection and management, including the status of the Management Plan and other plans;
5. Hold consultations with national and local authorities and relevant stakeholders to review the progress made in addressing the concerns expressed by the World Heritage Committee in its previous decisions.

Based on the results of the above-mentioned assessments and discussions with the State Party representatives and stakeholders, the mission will develop recommendations to the State Party and the World Heritage Committee with the objective of providing guidance to the State Party on an integrated conservation and management strategy that will ensure the protection of the property's Outstanding Universal Value. It should be noted that recommendations will be provided within the mission report (see below), and not during the mission.

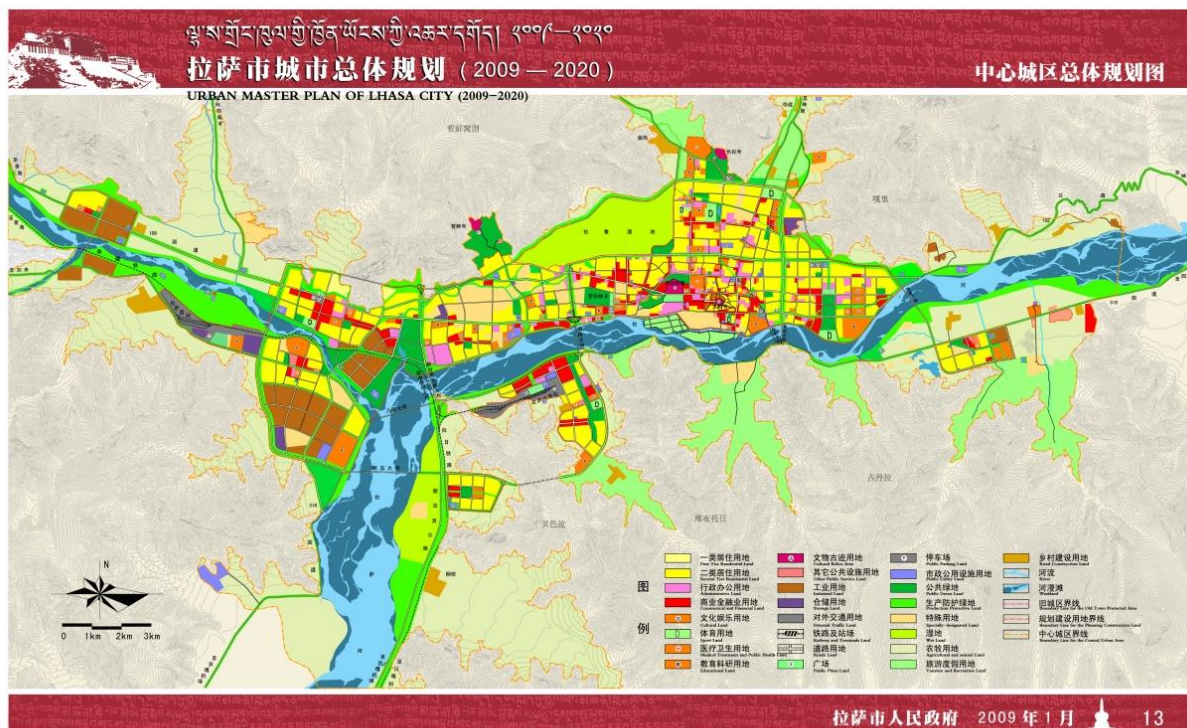
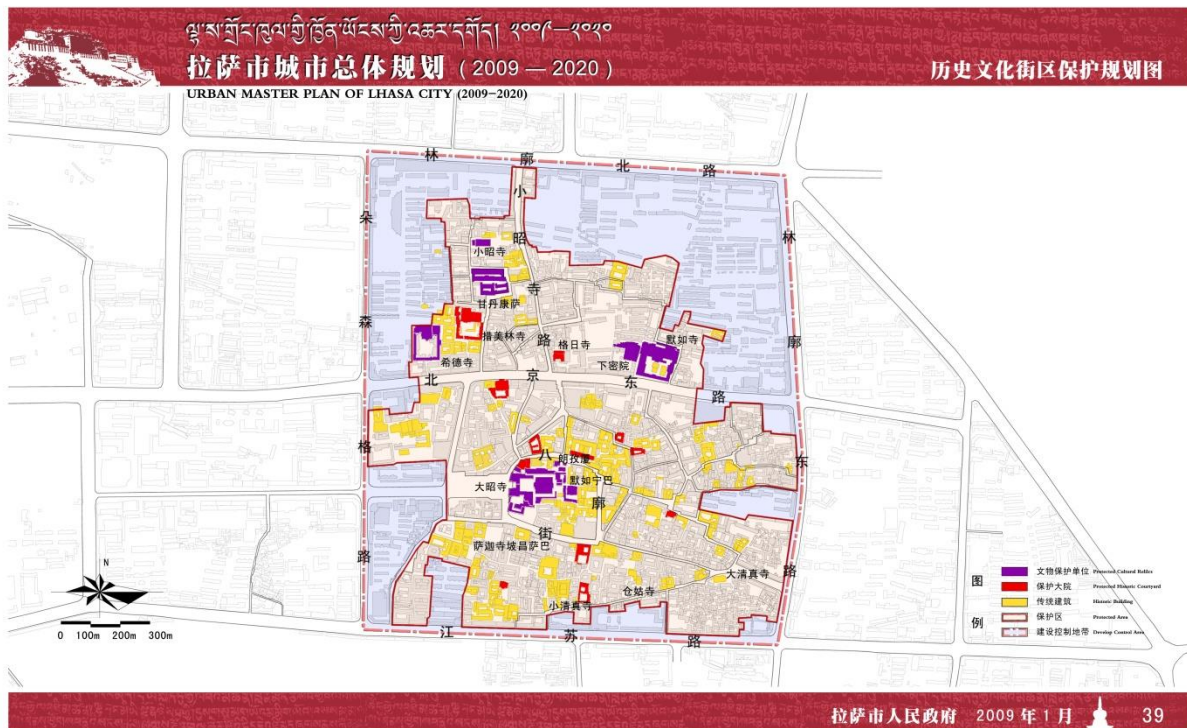
The mission will prepare a concise report on the findings and recommendations within 6 weeks following the site visit, in line with the World Heritage Centre reactive monitoring mission report Format.

**WHC / ICOMOS / ICCROM RM Mission to the World Heritage  
Property of the Historic Ensemble of the Potala Palace, Lhasa**

**ITINERARY**

|                                 |   |
|---------------------------------|---|
| Day 1 (April 25 <sup>th</sup> ) | Ms. Mie Oak Chae and Mr. Gamini Wijesuriya arrived at Beijing, China  |
| Day 2 (April 26 <sup>th</sup> ) | Ms. Mie Oak Chae, Mr. Gamini Wijesuriya and SACH staffs, flight to Lhasa from Beijing<br><br>Mr. Ron Van Oers , flight to Lhasa from Shanghai<br><br>Break at hotel, in the afternoon                           |
| Day 3 (April 27 <sup>th</sup> ) | Visiting the World Heritage Property of Jokhang Temple and Barkhor Historical Area, in the morning<br><br>Visiting the World Heritage Property of Potala Palace, in the afternoon                               |
| Day 4 (April 28 <sup>th</sup> ) | Visit the World Heritage Property of Norbulingka, in the morning<br><br>Meeting with the representatives of the stakeholders for Conservation and Preservation of Historic Ensemble of the Potala Palace, Lhasa |
| Day 5 (April 29 <sup>th</sup> ) | Flight back to Beijing/Shanghai   |
| Day 6 (April 30 <sup>th</sup> ) | Ms. Mie Oak Chae and Mr. Gamini Wijesuriya leave China  |

## Annex 2 - Urban Master Plan of Lhasa City(2009-2020)



## **Annex 3 - The Old Town Protection Project of Lhasa**

Lhasa launched a conservation project for the ancient city of Lhasa along Barkhor Street in 2012, in a bid to solve the problems including the outdated infrastructure in ancient city, the roadside stall business defacing the landscape of historical blocks, and some hidden dangers. In order to secure the livelihood and operating rights of 3,031 merchants who do roadside stall business, the Lhasa Municipal Government, after checking and calculating the quantity and operational areas of stalls and number of merchants, constructed Barkhor Mall and Shenli Mall outside the scope of historical and cultural zone of Barkhor Street and inside areas to be demolished and vacated in the government office campus within the boundary area of the buffer zone of Jokhang Temple for all the 3,031 stall operators to conduct business activities uniformly. The malls provide service facilities for tourists to park and take a rest, playing a role of tourist hub. They are located within the buffer zone (Lhasa old urban area and historical and cultural zone of Barkhor Street) of the world heritage site of Jokhang Temple.

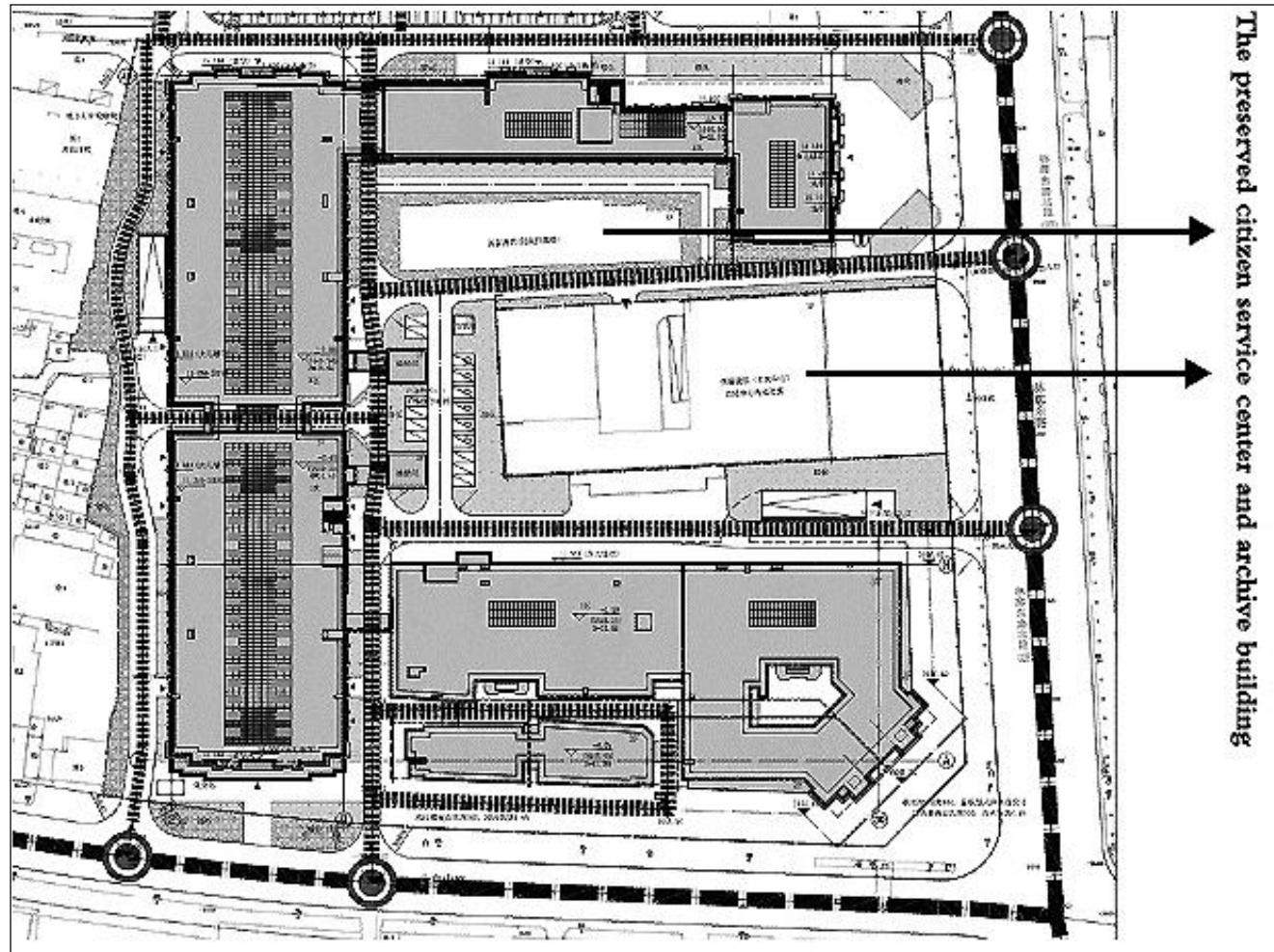
### **a) the Barkhor Mall**

The phase I project of Barkhor Mall was completed in November 2013, while the phase II project hasn't started yet. The assessment report only focuses on heritage impacts of the phase I project of Barkhor Mall. According to the *Guidance on Heritage Impact Assessments (HIA) for Cultural World Heritage Properties* of the International Council on Monuments and Sites (ICOMOS) and the *Requirements of the State Administration of Cultural Heritage on Heritage Impact Assessments for Construction Projects within Protection Scope and Buffer Zone of State Priority Protected Sites* (B.B.H. [2014] No. 60 Document), the technical plans regarding the project shall be attached with the heritage impact assessment report. In accordance with related international charters, conventions, declarations and guidelines as well as existing domestic laws, rules and documents, we will assess the project of Barkhor Mall objectively and comprehensively. Through careful document analysis and field investigation, and by reference to the Plan for the Protection of Cultural Relics of Jokhang Temple, the Plan for the Protection of Historical and Cultural Zone of Barkhor Street, the Master Plan of Lhasa, and the requirements on control of buffer zone at heritage site, we will evaluate the direct or potential impacts of the construction project on the cultural world heritage property itself and the environment, especially the impact on the outstanding universal value (OUV) of the property, put forward the mitigation measures and

adjustment suggestions, ensure the effective protection of the OUV of the property, and provide assessment opinions for the related competent authorities, administrators and users, and stakeholders in their decision-making and consulting.

Barkhor Mall: located on the northwestern side (the original site of Chengguan District Government, Citizen Service Center, Archive Building and Jibenggang Police Station) of the intersection of Lingkhör East Road and Beijing Road, 650m and 2,000m away from Jokhang Temple and the Potala Palace in linear distance respectively. According to the requirements of construction project review and approval procedures, the Barkhor Mall project completed the Enterprise Investment Project Registration (S.F.G.W. [2012] F.G.T.Z.B. No. 83) according to law in January 2012. In the same period, the preparatory work was finished, such as project initialization, construction planning formalities, geological survey report, feasibility study report, environmental impact report, geologic disaster assessment, social stability maintenance risk analysis and assessment report. The project includes one preserved 3-storey citizen service center, one preserved 4-storey archive building, and one newly built 3-storey commercial building, and the main body of the buildings is 11.65m high, with an underground parking lot, which is 4.70m high and contains 520 public parking spaces.





Plan of phase I project of Barkhor Mall



The scene before construction of Barkhor Mall (South-North)



The scene after completion of phase I project of Barkhor Mall (South-North)





The scene before construction of Barkhor Mall (east-west)



The scene after completion of phase I project of Barkhor Mall (east-west)

The project includes the reconstruction and new construction as below:

- (1) Reconstruction of the original modern style 3-storey Lhasa Citizen Service Center and 4-storey Archive Building into Tibetan style buildings;
- (2) Constructing a new 3-storey Tibetan style building for business operations at the

site selected;

(3) Constructing 520 new parking spaces for public services.

### **Related impacts of the project**

**Impact on the core area of Jokhang Temple:** The Lhasa Barkhor Mall Construction Project is located to the north of Beijing Road and in the boundary area of Jokhang Temple's buffer zone, does not involve the core area of the heritage site, and does not affect the criteria 1, 4 and 6 according to which Jokhang Temple was inscribed on the World Heritage List in 2000 --- as a masterpiece and example of Tibetan religious architecture, and the lofty historical status in the Tibetan people and among plentiful Buddhists. The carrier bearings the OUV of Jokhang Temple was not directly impacted too:

**Impact on the Historical status and religious significance of Jokhang Temple:** The new construction project in the buffer zone does not affect the significance of Jokhang Temple for Buddhists, especially Tibetan people.

**Impact on the Authenticity and integrity of Jokhang Temple:** The place for construction of Barkhor Mall project is originally the site of Lhasa Chengguan District Government, and it is a modern 4-storey building complex of brick and concrete structure constructed in 1950-2000. The project construction does not affect the authenticity and integrity of the heritage site itself.

**Impact on the Historical pattern of Jokhang Temple:** The Barkhor Mall is located to the north of Beijing Road, and in the boundary area of the buffer zone of Jokhang Temple of the Historic Ensemble of the Potala Palace (Jokhang Temple and Norbulingka). The site is the original location of Chengguan District Government, Lhasa Citizen Service Center and Lhasa Archive Building constructed after 1949. According to research on the historical evolution of the ancient city of Lhasa (for details, please see [the drawings list 2: historical evolution chart](#)), this area was a swampland before 1949.

**Impact on the Historical landscape environment of Jokhang Temple:** The construction of Barkhor Mall is beneficial to meeting the demands of relocating surrounding residents and moving business outside surrounding areas of Jokhang Temple, and plays a positive role in improving the historical landscapes and scenes of Jokhang Temple and the ancient city of Lhasa.

**Impact on the Visual corridor of Jokhang Temple:** Barkhor Mall project is located on the northwestern side of the intersection of Lingkhör East Road and Beijing Road. It has minor impacts on the visual corridor between Jokhang Temple and Gali Mountain.

**Impact on the Stakeholders:**

**Residents' daily life:** The newly added construction project will remove the roadside stalls of the Jokhang Temple square and historical and cultural zone of Barkhor Street, reduce the commercial pressure in the ancient city of Lhasa, add public services and parking areas, and guarantee the smooth proceeding of residents' business operation indirectly, bringing minor improvement. The newly constructed Barkhor Mall will mainly sell daily goods for local residents at the second floor; it will meet the shopping demands of residents in the ancient city of Lhasa to some extent, bringing minor improvement.

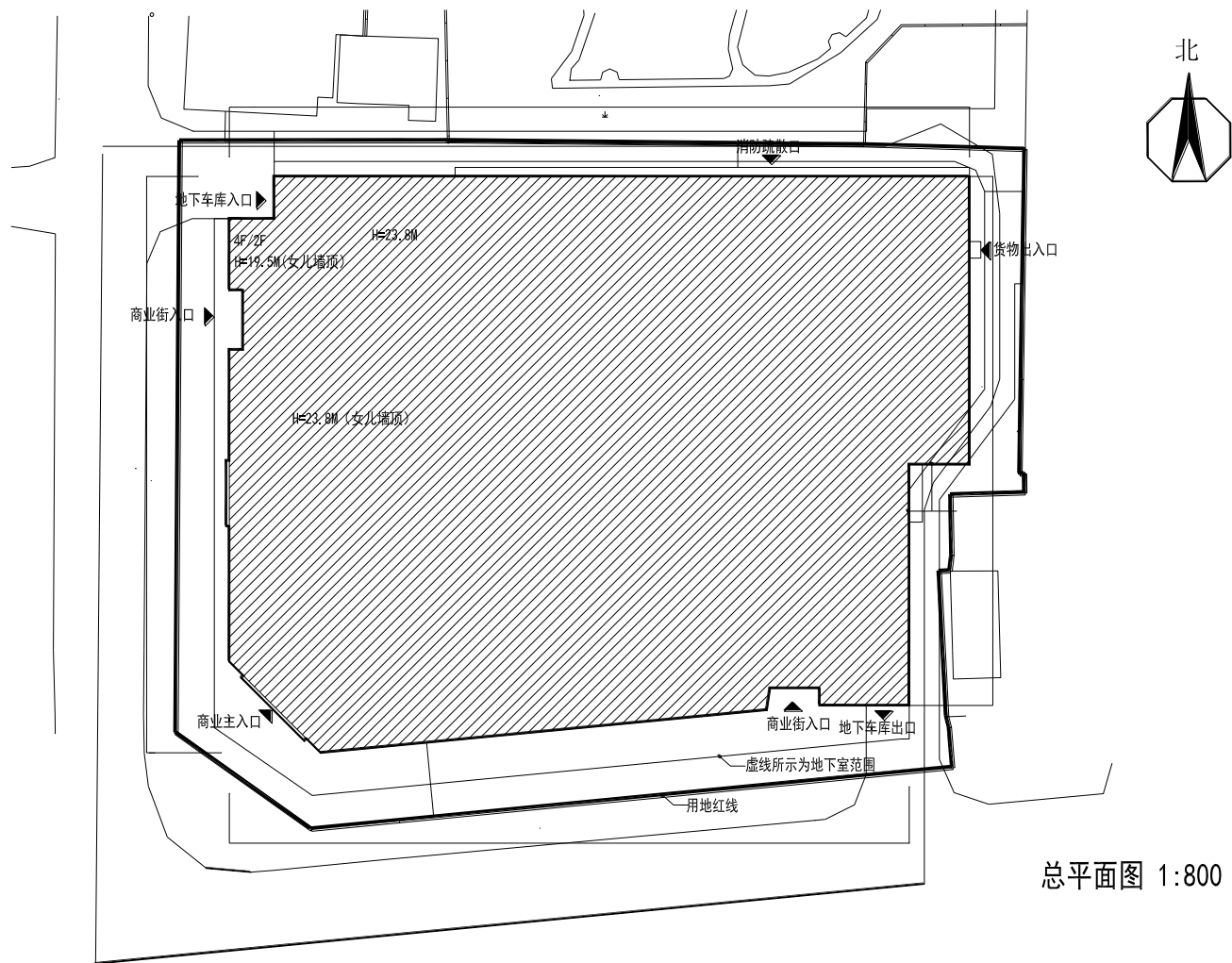
**Stall operators:** Moving from Jokhang Temple square and Barkhor Street to Barkhor Mall will affect original stall holders' incomes to some extent. Barkhor Mall Management Office will attract the settlement of merchants and balance the retailers' loss of profits through the 8-year booth rent exemption.

**Impact on the Cultural inheritance:** Jokhang Temple has a prominent place in the history of Buddhism around the world, especially in the formation and development of Tibetan Buddhism, and has exerted significant influences on Tibetan history and social culture. It has played an important role in propagating and advocating Buddhism and promoting the unity of Tibetan and Han people. The Barkhor Mall construction project does not affect the cultural inheritance of the Jokhang Temple.

**b) the Shenli Mall**

The Lhasa Shenli Mall Construction Project is located in the boundary area of the buffer zone of Jokhang Temple --- an expansion project of the Historic Ensemble of the Potala Palace (including the Jokhang Temple and Norbulingka). According to the requirements of the project review and approval procedures, the Shenli Mall construction project applied for the Planning Permit for Construction Project in July 2011 and the Construction Permit for Construction Project in December 2011. Also, the project successively completed the preparatory work such as the water resources demonstration report, water and soil conservation plan and geological disaster risk

assessment. The project is a commercial building with four floors on the ground and two floors underground, which are 7.00m high. The first floor underground is a green grocery. The second floor underground is a parking lot, which contains around 400 public parking spaces.



Plan of project of Shenli Mall

## Related impacts of the project

**Impact on the core area of Jokhang Temple:** The Lhasa Barkhor Mall Construction Project is located to the north of Beijing Road and in the boundary area of Jokhang Temple's buffer zone, does not involve the core area of the heritage site, and does not affect the criteria 1, 4 and 6 according to which Jokhang Temple was inscribed on the World Heritage List in 2000 --- as a masterpiece and example of Tibetan religious architecture, and the lofty historical status in the Tibetan people and among plentiful Buddhists. The carrier bearings the OUV of Jokhang Temple was not directly impacted too:

**Impact on the Historical status and religious significance of Jokhang Temple:** The new construction project in the buffer zone does not affect the significance of Jokhang Temple for Buddhists, especially Tibetan people.

**Impact on the Authenticity and integrity of Jokhang Temple:** The construction site of Shenli Mall Project is the former office building of Lhasa Municipal Construction Bureau that was a modern-style 4-storey building of brick and concrete structure constructed in 1950-2000. The project construction does not affect the authenticity and integrity of the property of the Jokhang Temple.

**Impact on the buffer zone of the Jokhang Temple:** Pattern of historical and cultural zone: Lhasa Shenli Mall is located to the north of Beijing Road and to the east of Duosenge Road, and formerly, the site was home to the courtyard of Lhasa Municipal Construction Bureau constructed after 1949 (non-traditional pattern).

**Impact on the Historical landscape environment of Jokhang Temple:** As a single building in the boundary area of buffer zone, it has relatively small impacts on the whole 133ha buffer zone of the Jokhang Temple, only bringing minor changes.

**Impact on the Visual corridor of Jokhang Temple:** Lhasa Shenli Mall is located in the boundary area of the visual corridor between the Potala Palace and the Jokhang Temple --- Historic Ensemble of the Potala Palace (refer to the drawings list 9: Visual impact analysis chart), and it is 544m and 1100m from the Jokhang Temple and the Potala Palace in linear distance. The building height of Lhasa Shenli Mall is 23.8m, exceeding the upper height limit of 12m for buildings in the buffer zone of the Jokhang Temple, and having some impacts on the visual corridor between the Jokhang Temple and the Potala Palace.

**Impact on Stakeholders:**

**Surrounding residents' daily life:** The newly added construction project could remove the roadside stalls, reduce the commercial pressure in the ancient city of Lhasa, add public services and parking areas (refer to Figure 8 of Annex 1), and guarantee the smooth proceeding of residents' business operation indirectly, bringing minor improvement. The newly added project could meet the shopping demands of residents in the ancient city of Lhasa to some extent.

**Tourist experience:** The newly added construction project mitigates the tourist pressure on the ancient city to some extent, adds new service facilities, and facilitates traffic and people flow, bringing minor improvement.



The scene of Shenli Mall (Southwest-Northeast)





The scene of Shenli Mall (Southeast-Northwest)



The scene of Shenli Mall (Southeast-Northwest)

Regarding the changes of ground water: the Lhasa Water Conservancy Bureau and other



**bodies carried out monitoring on underground water level and surrounding buildings in time, and the assessment report shows that there has not appeared ground settlement or other phenomena affecting underground water resources.**

### **c) the Old Town Protection Project**

The background of the Old Town Protection Project (namely drainage, road works and renovation ): The old town of Lhasa takes the historical and cultural zone of Barkhor Street as the core, includes the areas to the west of Lingkhör East Road, to the east of Duosenge Road, to the north of Jiangsu Road, and to the south of Lingkhör North Road, covers an area of 1.33Km<sup>2</sup>, has three sub-district offices, 15 neighborhood committees, and a permanent resident population of around 110,000. Barkhor Street, centering on the Jokhang Temple, is the downtown incorporating the functions such as residence, commerce and trade, religion, tourism and culture, has strong national and religious characteristics, boasts typical characteristics the old town of Lhasa, and is home to plentiful precious cultural properties and historical buildings.

However, due to natural erosion, insufficient investment, dramatic surge in the population caused by urban development, and outdated municipal facilities, the old town has to undertake extraordinarily heavy duties in conservation and management of historical and cultural properties. As a result, the old town's environment is not harmonious with the overall styles and features of its world cultural heritage site, historically and culturally famous city and historically and culturally famous street, in the following aspects:

Historical buildings need maintenance due to water and wind erosion and isolation weathering. There are many cables on ground, forming black cobweb-like pollution. Electric wires are connected randomly, destroying the original historical style and features of the old town. Due to service-aged electrical cables, obstruction of some fire lanes and old fire fighting facilities, there are serious hidden risks for fire safety. Drainage facilities are insufficient, pipeline network is not arranged reasonably, the pipe diameter of drainage outlet (Beijing East Road, Jiangsu Road) is small, the damage and blockage are serious, the drainage system is not cleared, and dirty water overflows and pollutes the environment.

The said problems undermine the historical styles and features of the old town as well as the overall environment of the world heritage site, and severely threaten the life and property safety of residents in the old town. According to a poll jointly by the Chengguan District and

Old town Management Committee in December 2012, about 96% of residents completely supported the implementation of old town protection project. The project was commenced on December 20, 2012, and completed on June 30, 2013.

According to the requirements of construction project review and approval procedures, the protection project for the old town of Lhasa has obtained the Official and Written Approval of the Feasibility Study Report on the Protection Project for the Old town of Lhasa (Z.F.G.T.Z. [2013] No. 500). Meanwhile, related preparatory work has been completed, including project initialization, construction planning formalities, initial design estimate, environmental impact report, petition letter stability risk evaluation report, feasibility study report and energy efficiency evaluation report. All procedures meet legal regulations, and the written replies to various evaluation items agree with the implementation of the Protection Project for the Old town of Lhasa.

The Protection Project is mainly aimed at cultural heritage conservation, improvement of people's livelihood and continuation of excellent ethnic culture, and focuses on updating municipal infrastructure and removing the hidden safety dangers, such as fire, in the old town. The main construction projects include underground comprehensive pipeline improvement, electric power system renovation, water supply and drainage systems upgrade, fire facilities improvement and hidden risks prevention, heating system upgrade in the old town, road system renovation, street lamps upgrade and environmental sanitation improvement.

According to the documents provided by the competent authority and engineering design organization, the project implementation contains the underground comprehensive pipeline improvement, electric power system renovation, water supply and drainage systems upgrade, fire facilities improvement and hidden risks prevention, heating system upgrade in the old town, etc., in the following aspects:

- a) Underground comprehensive pipeline improvement: building 31.42Km underground comprehensive pipelines and trenches, and making 1,654 inspection wells of electric power, communication, water supply and drainage, etc..
- b) Electric power system renovation: Constructing one 110kV transformer substation to supply power for the old town, laying 135Km high- and low-voltage cable, installing 123 sets of box-type transformers, 50 sets of looped network boxes, 448 sets of branch boxes, and fixing 1,477 in-house meter boxes for 17,072 households.
- c) Water supply and drainage systems upgrade: Constructing 1.2Km main water supply

pipelines, renovating and repairing 7Km water supply pipelines; dredging 29.43Km main sewage discharge pipelines, cleaning 1,965 sewage wells, dredging 9.3Km rainwater pipeline, cleaning 4,004 rainwater wells, clearing and transporting 2,608 tons of sludge.

- d) Fire facilities improvement and hidden risks prevention: Installing 2 fire water cranes and 46 fire hydrants, dismantling more than 2,200Km various circuits which are aged, damaged and connected at random, detecting and eliminating 260 hidden dangers, and removing 89 fire access barriers.
- e) Heating system upgrade in the old town: Constructing the power supply system, surely meeting the demand of electricity utilization load for electric heating, reconstructing and replacing 13,473.4Km heating circuit behind meters and domestic electric circuits, and constructing 3.5Km gas pipeline. The heating system upgrade in the old town leads to the installation of 24,152 sets of electric heaters and 1,031 sets of wall-hanging gas stoves, and could meet the heating demands of 110,000 people in the old town.
- f) Renewing 1,438 street lamps.
- g) Adding environmental sanitation facilities: 300 garbage bins, 170 dustbins, and 70 seats.

### **Related impacts of the project**

**Impacts on the Historical pattern of Barkhor Street:** The pattern of the historical and cultural zone: Barkhor Street has been gradually formed along with the construction of Jokhang Temple. Surrounding buildings are developed outward layer by layer around Jokhang Temple, and have gradually formed the pattern of inner, middle, and outer ring-shaped circumambulations. The Mani Gara Gallery around the main shrine Jokhang is an internal circumambulation (length 200m, width 5-6m, area 1,380 m<sup>2</sup>) of Jokhang Temple, and around Barkhor Street is the middle-ring circumambulation (length 800m, width 7-20m, area: around 12,440 m<sup>2</sup>) of Jokhang Temple. This old town protection project does not affect the direction of the circumambulation in the historical and cultural zone of Barkhor Street.

**Impacts on the Historical buildings and cultural relic buildings in the zone:** According to the materials provided by cultural heritage department, the historical and cultural zone of Barkhor Street has 65 priority protected sites, including 8 state priority protected sites, 4 provisional-level priority protected sites and 53 city or district-level priority protected sites, and 61 registered immovable cultural properties, totally 126 various cultural properties in total. The

items involved in this old town protection project are the infrastructure improvement, and the project does not produce negative impacts on the historical and cultural buildings in the zone.

**Impacts on the Protection of historical buildings:** The reconstruction of infrastructure such as water supply and drainage, electric power, fire control and heat supply, involved in the protection project for the old town of Lhasa ensures the safety operation of electric heating in the zone, improves the water supply and drainage system of the old town, realizes safer protection of historical buildings, and brings minor improvement.

**Impacts on the Civil engineering:** Before implementation of civil engineering, the old town was lack of systematic planning and layout; the present water supply and drainage pipelines are laid without considering the underground laying requirements of other pipelines; most strong-current, communication, broadcasting and TV cables in old town are not buried underground, but are aerated, having great impacts on the historical & cultural image, style and features of the old town, and bringing serious hidden dangers to the cultural heritage conservation, fire control, residents and others in the old town. After implementation of civil engineering, all aerated cables are safely buried underground and the “cobweb” formed from random wire connection is solved thoroughly, bringing minor improvement of functions.

**Impacts on the Roads:** Before implementation of road renovation, Barkhor Street Circumanbulation was paved with smooth granite, and the ground reflects light strongly under sunshine. The road renovation adopts Tibetan local bluestone slabs to pave the road, weakening the light reflection of stone slabs and bringing minor improvement.

**Impacts on the Water supply and drainage:** Before implementation of water supply and drainage project, in the old town, the east-west main pipeline had over big drainage pressure, inspection wells, rainwater inlets and drainage pipelines were severely silted-up, the drainage pipeline network had the phenomena of adverse grade and connection of big pipes with small pipes, some streets had “ended-down” pipeline network, and it was inconvenient for residents to draw water. The implementation of the water supply and drainage preojct effectively improves the water supply and drainage system in the old town, solves the insufficient water supply pressure, raises the sewage discharge ability of drainage pipelines, and brings minor improvement of functions.

**Impacts on the Heating:** Before implementation of heating system upgrade, the old town faced the quandary of being cold in room in winter due to insufficient heating. The

implementation of heating system upgrade meets the heating demands of more than 110,000 persons in the old town and ends the history of no heating in winter, bringing minor improvement.

**Impacts on the Fire control and electric power:** Along with the dismantlement of old circuits and the adding of electric facilities and fire control facilities, the old town has greater power supply capacity, and the hidden troubles in fire control, such as fire disaster, are solved, bringing minor improvement.

**Impacts on the Lighting:** In recent years, residential buildings have been repaired in the old town, causing that plentiful street lamps are dismantled without authorization and many street lamps cannot work normally, directly affecting residents' travel at night. The street lamp design adopts Tibetan culture elements and multi-circuit control. Butter lamps may be used as landscape street lamps. This improves the insufficient lighting at night in the historical and cultural zone of Barkhor Street, bringing tiny improvement.

**Impacts on the Environmental sanitation facilities:** The environmental sanitation facilities in the historical zone have been used for many years, so most of them have been severely aged and damaged. The installation and updating of environmental sanitation facilities improve the current environmental sanitation of the historical zone, bringing tiny improvement.

**Impacts on the Historical landscape environment:** The improvement of infrastructure removes the dirty and disorderly phenomena of the historical zone, and brings minor improvement.

**Impacts on the Visual corridor:** The project implementation doesn't produce direct impacts on the visual corridor of the historical zone, bringing tiny changes.

**Impacts on the Tourist experience:** The project implementation enhances the cultural charms and influences of Barkhor Street, brings more convenience for plentiful tourists, and realizes the good interaction of tourism industry and national cultural protection, bringing minor improvement.